

**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF UNDERGROUND STORAGE TANKS
CORRECTIVE ACTION PLAN
GUIDELINES**

Instructions:

If soil or ground water contamination above the applicable cleanup levels is not present, no further action is necessary and a CAP does not need to be prepared. If soil or ground water contamination is present above the applicable cleanup levels, complete the relevant portions of the CAP.

If the responsible party believes the site should not be subject to the applicable cleanup requirements detailed in Appendices 4 and 5 of the UST Regulations, then the responsible party may petition the Commissioner for a Site Specific Standard as outlined in Rule 1200-1-15-.06(7)(e)5. & 6. The requirements for requesting a Site Specific Standard are listed in Technical Guidance Document - 008. If the responsible party intends to petition for a Site Specific Standard, the request shall be submitted in lieu of the CAP by the established deadline.

A Corrective Action Plan (CAP) shall be prepared and submitted upon approval of the Environmental Assessment Report (EAR). All geologic work specified in this document shall be directed by a registered professional geologist under the Tennessee Geologist Act (T.C.A. §62-36-101 et seq.), or a registered professional engineer under the Tennessee Architects, Engineers, Landscape Architects, and Interior Designers Law and Rules (T.C.A. §62-2-101 et seq.). A registered professional engineer shall oversee all corrective action design specifications. This plan shall describe in detail the specifications of the corrective action chosen along with a detailed, itemized cost summary of three different systems capable of implementing the chosen technology. Proposed corrective actions shall actively remediate, entirely encompass, and prevent further migration of the contaminant plume(s).

If the CAP has not been submitted by the established deadline, a written request, justifying the extension shall be submitted before the deadline to the appropriate field office. An extension is not automatic and enforcement actions may be taken to insure prompt compliance with established deadlines. Failure to meet established deadlines may place the responsible party out of substantial compliance and may result in the loss of fund coverage.

Each section of the CAP shall be prepared and assembled in the order presented within these guidelines. Text shall be provided explaining the associated tables and maps. All maps and tables shall be in the appropriate sections, not in appendices. All maps shall be drawn on 8.5 x 11 or 11 x 17 inch paper and contain at a minimum a north arrow, legend, scale bar, vertical scale if applicable and figure number. These guidelines are intended to provide a structured outline. Any information that is not specifically requested but is relevant to the project shall also be included. The preparer shall assemble the information provided in each section to provide a comprehensive final document. Each section and subsection heading shall be clearly printed in the report. A table of contents shall be provided listing the location of all sections, maps, tables and appendices.

All correspondence, reports, laboratory analysis sheets, etc. shall contain the TN UST Facility ID Number. A copy of all correspondence and reports shall be submitted to the UST central office and the appropriate field office.

CORRECTIVE ACTION PLAN (CAP)

A. Applicable cleanup levels

State the applicable cleanup levels for soil and/or ground water as determined in the Initial Site Characterization Report.

B. Corrective Actions

1. Soil

- a. Provide a description of the corrective action technology chosen for soil remediation. Specify why this system or method is best suited for remediation at this site including the life expectancy of the project and the calculated effective radius of influence (show calculations). If a soil vapor extraction system is proposed, a minimum vacuum of 1 inch of water shall be used to define the effective radius of influence. If a soil vapor extraction system is not proposed, provide justification as to why this option is not technologically feasible or cost effective.
- b. Provide a detailed discussion of three (3) different systems capable of implementing the corrective action technology chosen and indicate which system was selected as being the most cost effective. Include the following information at a minimum, if applicable:
 - i. Capital costs (Prepackaged systems should not be broken into individual components);
 - ii. Individual component specifications;
 - iii. Installation costs;
 - iv. Excavation and disposal costs (if applicable);
 - v. Operation and maintenance requirements and costs; and,
 - vi. Monitoring and reporting costs.
- c. Provide a scaled site map depicting the calculated effective radius of influence of the remediation system overlaid on maps of the horizontal and vertical contaminant plumes which were supplied in the EAR.
- d. Provide a process flow diagram including all components of the remediation system. Provide all equipment brochures and manufacturers' design specifications.
- e. Provide a scaled site map depicting the layout of the remediation and/or excavation zone.

If a pilot study is proposed to determine the design specifications for the remediation equipment, justification including a detailed cost estimate, shall be submitted for approval prior to implementation.

If any soil corrective action is in operation or has been completed, describe how this will affect the proposed option and show the measured effective radius of influence. If a soil vapor extraction system is proposed, provide the rationale for the design and placement of the vapor extraction wells and the vacuum pump design.

2. Ground Water

- a. Provide a description of the corrective action technology chosen for ground water remediation. If a prepackaged, predesigned treatment system is not proposed, provide justification that the costs to design, construct, install, operate and maintain the proposed system does not exceed that of a prepackaged system. Specify why this technology is best suited for remediation at this site including the life expectancy of the project and the calculated effective radius of influence (show calculations). A minimum of 0.5 feet drawdown at the edge of the plume is required to be considered an effective radius of influence for pump and treat systems.
- b. Provide a detailed discussion of three (3) different systems capable of implementing the corrective action technology chosen and indicate which system was selected as being the most cost effective. Include the following information at a minimum, if applicable:
 - i. Capital costs (Prepackaged systems should not be broken into individual components.);
 - ii. Individual component specifications;
 - iii. Installation costs;
 - iv. Operation and maintenance requirements and costs;
 - v. Pump rates (gpm);
 - vi. Monitoring and reporting costs; and,
 - vii. Effluent discharge options and costs (If reinjection is not chosen, provide an explanation why reinjection would not be the most cost effective or technologically feasible.).
- c. Provide a scaled site map or flow net diagram showing the calculated effective radius of influence of the remediation system overlaid on maps of the horizontal contaminant plumes which were supplied in the EAR. Include a discussion concerning the number, depth, and placement of recovery wells as it relates to the life expectancy of the project.
- d. Provide a process flow diagram including all components of the remediation system. Provide all equipment brochures and manufacturers' design specifications.
- e. Provide a scaled site map depicting the layout of the remediation and/or excavation zone.

If a pilot study is proposed to determine the design specifications for the remediation equipment, justification including a detailed cost estimate, shall be submitted for approval prior to implementation.

If any emergency or interim corrective actions are currently in operation (e.g. free product removal, etc.), explain how the implementation of the proposed corrective action will enhance or alter the current system. If the system is currently in operation, show the actual, measured radius of influence.

C. Cost Estimate

Complete the attached Corrective Action Cost Estimate Form and provide a detailed breakdown of the estimated costs for the three systems evaluated. The low cost estimate for the three systems shall represent a “not to exceed” bid upon approval by the Division. All cost estimates and vendor bids shall represent current market prices.

The costs incurred to date for all previous activities shall be included on the Cost Estimate Cover Sheet.

If this corrective action is Fund Eligible, the cost estimates for the corrective action and the reimbursement application(s) will be reviewed concurrently. The Division will only reimburse reasonable costs associated with the investigation and cleanup of the site. The amount reimbursed shall be based on the review of actual charges submitted in the reimbursement application and the responsible party having met all the requirements of Rule 1200-1-15-.09(11)

D. Proposed Implementation Schedule

Provide a detailed schedule of all events necessary to implement the proposed corrective action through system start-up. This schedule shall not exceed ninety (90) days from the time the Division approves the CAP.

E. Monitoring and Reporting

Based upon site specific information, propose the monitoring wells to be utilized during the site status monitoring to measure the effectiveness of the corrective action system. Any springs, water supplies or other areas of concern shall be proposed to be monitored. All monitoring and reporting shall be performed in accordance with Technical Guidance Document - 007 Monitoring at UST Sites. A detailed cost estimate for monitoring and reporting shall be included in the Corrective Action Cost Estimate Form.

CORRECTIVE ACTION COST ESTIMATE FORM

TN UST Facility ID #__-__-__-__-__-__

CHECK ONE

Soil Corrective Action

Ground Water Corrective Action

Define Systems

A.

B.

C.

Corrective Action Implementation	System A	System B	System C
Project Life	__ Year(s)	__ Year(s)	__ Year(s)
Capital Equipment (List all equipment in excess of \$ 500)			
Shipping			
Miscellaneous parts and supplies			
Drilling			
Excavation			
Trucking			
Surveying			
Other Services			
One Comprehensive Monitoring Event			
Rentals (List Below)			
Disposal - Free Product			
Water			
Soil			
Utilities			
Permitting			
Lodging and Per Diem			
Mileage Miles _____ X \$ _____/mile			
Miscellaneous (List Below)			
Installation of system: (All Labor)			
Subtotal			

Operations and Maintenance (per month)	System A	System B	System C
Professional Services			
Permitting			
Utilities (per month)			
Supplies			
Disposal			
Lodging and Per Diem			
Mileage Miles _____ X \$_____/mile			
Miscellaneous			
SUBTOTAL			
Subtotal of O&M (Monthly Subtotal X Project Life In Months)			

Site Monitoring (per month)	System A	System B	System C
Professional Services			
Analytical			
Supplies			
Disposal			
Lodging and Per Diem			
Mileage Miles _____ X \$_____/mile			
Miscellaneous			
SUBTOTAL			
Subtotal of Site Monitoring (Monthly Subtotal X Project Life In Months)			

Reporting (per month)	System A	System B	System C
Professional Services			
Miscellaneous			
SUBTOTAL			
Subtotal of Reporting (Monthly Subtotal X Project Life In Months)			

Site Closure (per month)	System A	System B	System C
Professional Services			
Supplies			
Lodging and Per Diem			
Mileage Miles _____ X \$_____/mile			
Miscellaneous			
SUBTOTAL			
Subtotal of Site Closure (Monthly Subtotal X Project Life In Months)			

GRAND TOTAL			
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F. Signature Page

A signature page, as shown below shall be attached to the CAP. The page shall be signed by the owner/operator (or authorized representative within the organization) and a registered professional geologist under the Tennessee Geologist Act (*T.C.A. §62-36-101 et seq.*), or a registered professional engineer under the Tennessee Architects, Engineers, Landscape Architects, and Interior Designers Law and Rules (*T.C.A. §62-2-101 et seq.*).

We, the undersigned, certify under penalty of law, including but not limited to penalties for perjury, that the information contained in this report form and on any attachments, is true, accurate and complete to the best of our knowledge, information, and belief. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for intentional violations.

Owner/Operator (Print name)	Signature	Date
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Title (Print)

P.E. or P.G. (Print name)	Signature	Date
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Tennessee Registration #

Note: Each of the above signatures shall be notarized separately with the following statement.

STATE OF _____ COUNTY OF _____

Sworn to and subscribed before me by _____ on this date

_____. My commission expires _____.

Notary Public (Print name)	Signature	Date
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Stamp/Seal